



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,983	12/10/2003	Ian A. Pancham	004486C01	9396
7590		01/24/2006	EXAMINER	
Patent Counsel		VU, JIMMY T		
Post Office Box 450A		ART UNIT		
Santa Clara, CA 95052		PAPER NUMBER		
		2821		

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

SK

<b>Office Action Summary</b>	<b>Application No.</b> 10/733,983	<b>Applicant(s)</b> PANCHAM ET AL.	
	<b>Examiner</b> Jimmy T. Vu	<b>Art Unit</b> 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 November 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21, 27-30 and 38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10, 16-21, 27-29 and 38 is/are rejected.
- 7) ☒ Claim(s) 7 and 11-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/9/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant argues:

The nut (534) of Subramani is not an integral member of the coil. The nut (534), coil (104) and bolt (532) are separate members of an assembly.

Examiner disagrees:

The term “integral” by definition in the dictionary is “formed as a unit with another part”. Therefore, the nut (534), coil (104) and bolt (532) of Subramani, as shown in Figs. 7, page 8, lines 2-10, are integral together.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 8-10, 16-21, 27-29 and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Subramani (International Publication number WO 97/42648).

Regarding claims 1, 27, 29 and 38, Subramani discloses an apparatus (10) (Fig. 1) for energizing a plasma within a semiconductor fabrication system by coupling energy into the plasma, the apparatus comprising:

a semiconductor fabrication chamber (102) (Figs. 1 and 2) having a first wall (140) (Figs. 2 and 7) at least partially defining a plasma containment region;

a coil (104) (Figs. 1, 7 and 8) having a first face facing said plasma containment region and a second face facing said first wall, said second face defining a fastener recess (532) (Figs. 1, 2, 7 and 8) extending partially through said coil; and

a fastener member (532) adapted to fasten said coil to said first wall wherein said coil second face fastener recess is adapted to receive said fastener member (Figs. 1, 2, 7 and 8, page 17, lines 8-21, page 18, lines 5-28).

Regarding claims 2 and 5, Subramani discloses the apparatus wherein said fastener member is a bolt (532) and said fastener recess is a threaded bore (534) (Fig. 7, page 18, lines 2-10).

Regarding claim 3, Subramani discloses the apparatus wherein said coil second face includes a protruding member (534) integral with said coil and defining said fastener recess (Fig. 7).

Regarding claim 4, Subramani discloses the apparatus wherein said protruding member is welded to said coil second face (Fig. 7).

Regarding claim 6, Subramani discloses the apparatus further comprising a first insulating member (502) positioned around said bolt between said first wall and said bolt to electrically insulate said bolt from said first wall (Fig. 7).

Regarding claim 8, Subramani discloses the apparatus wherein said protruding member defines a recess positioned to receive one end of said first insulating member (502), said recess

being of sufficient size to define a first passageway (510) between said protruding member and said first insulating member end (Figs. 7 and 8).

Regarding claim 9, Subramani discloses the apparatus further comprising a conductive cup-shaped member (512, 612) attached to said first wall and defining a recess positioned to receive one end of said protruding member spaced from said cup-shaped member to define a second passageway (516) between said protruding member and said cup-shaped member (Figs. 7 and 8).

Regarding claim 10, Subramani discloses the apparatus wherein said cup-shaped member defines an opening positioned to receive the other end of said first insulating member and to electrically insulate said bolt from said cup-shaped member (Figs. 7 and 8).

Regarding claim 16, Subramani discloses the apparatus wherein said first and second coil faces are oriented vertically and said coil has a beveled edge to define a nonvertical, nonhorizontal flat face between said first and second faces (Figs. 1, 7 and 8).

Regarding claim 17, Subramani discloses the apparatus further comprising a source of RF energy (404) coupled to said fastener member to provide RF energy to said coil (Fig. 6).

Regarding claim 18, Subramani discloses the apparatus wherein said bolt has a head, said apparatus further comprising a second insulating member (530, 632) positioned around said bolt head to insulate said bolt from said first wall (Figs. 7 and 8).

Regarding claim 19, Subramani discloses the apparatus wherein the system includes a source of RF energy (404), said apparatus further comprising an RF conductor member adapted to couple RF energy from said RF source to said bolt head to provide RF energy to said coil, wherein said second insulating member (530, 632) is

positioned between said conductor member and said first wall to insulate said conductor member from said first wall (Figs. 6, 7 and 8).

Regarding claim 20, Subramani discloses the apparatus further comprising a target (110) adapted to provide sputtered deposition material and a substrate holder (114) positioned to hold a substrate (112) to receive said sputtered deposition material from said target (Fig. 6, page 16, lines 9-12).

Regarding claim 21, Subramani discloses the apparatus wherein said first wall is a generally cylindrical shield wall positioned between said target and said substrate holder (Figs. 1, 2, 7 and 8).

Regarding claim 28, Subramani discloses the apparatus wherein said fastener comprises a threaded bolt (532) and said coil protruding member defines a threaded bore (534) adapted to threadably receive said bolt (Figs. 7 and 8).

***Allowable Subject Matter***

3. Claim 30 is allowed.
4. Claims 7 and 11-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the prior art teaches the apparatus for energizing a plasma within a semiconductor fabrication system by coupling energy into the plasma wherein said standoff includes an aluminum nitride insulative member positioned to electrically insulate said coil from said first wall and to thermally couple said coil to said first wall.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy T Vu whose telephone number is (571) 272-1832. The examiner can normally be reached on M - F: 9 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300.

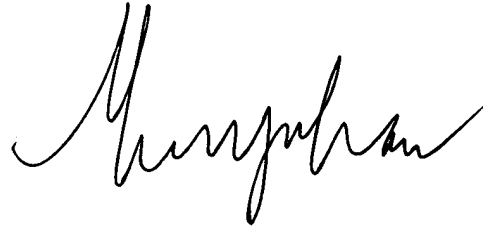
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2800.

Application/Control Number: 10/733,983  
Art Unit: 2821

Page 7

Jimmy Vu

January 20, 2006

A handwritten signature in black ink, appearing to read 'Thuy V. Tran', written in a cursive style.

**THUY V. TRAN  
PRIMARY EXAMINER**